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Rear Admiral Bartholomew W. Hogan MC USN - Surgeon General
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Staphylococcic Infections and Their Management

During the past year, much attention in medical publications and discussions has been paid to infections due to staphylococci, particularly hospital related infections. This emphasis on staphylococcal infections has been long overdue, in view of the fact that individuals with a special interest in infectious disease have been calling attention during the past 10 years and more to the dangers inherent in certain current medical practices. The indiscriminate use of antibiotic agents, the neglect of well established principles of asepsis, and the disregard for isolation techniques have created an unfortunate situation in some hospitals. In recent years, instead of concerted efforts to acquire greater control over staphylococcal disease, there has been generated a false sense of security with the resultant current rude awakening. Measures to lessen the incidence of staphylococcal infections have become mandatory and the results obtained after a return to principles of asepsis, isolation of infected patients, and elimination of carriers of staphylococci have been striking.

In formulating a program of treatment for staphylococcal infections, one must appreciate that host factors probably have been altered in order to permit the development of infection by this ubiquitous parasite. Metabolic or hematologic abnormalities favoring infection may be present. There may be an iatrogenic disturbance of the symbiotic relationship of the normal bacterial flora. Therefore, in so far as possible, the factors which have been altered should be restored to normal and the administration of transfusions or gamma globulin, the correction of hyperglycemia, or the termination of some form of therapy may be indicated. Today, one must not only attempt to detect underlying diseases which predispose to infections, such as diabetes mellitus, agranulocytosis, hypogammaglobulinemia, leukemia, and Cushing's syndrome, but also be aware of the fact that surgical measures and the use of steroids, nitrogen mustard, roentgen therapy, and antibiotics may encourage invasion by staphylococci.

The definitive treatment of staphylococcal infections with chemotherapeutic and antibiotic agents is another subject which needs clarification. The discovery of penicillin and the other antibiotic agents has made possible the cure of many staphylococcal infections which, heretofore, were extremely serious and often fatal. Unfortunately, there is no single antibiotic which will influence favorably all staphylococcal infections and considerable care, therefore, must be exercised in the selection and administration of antibacterial agents. Such selection has become difficult because of the large number of antibiotic agents available and because of the fact that different strains and types of staphylococci vary in their sensitivity to the various agents.

In vitro tests of sensitivity to different antibiotics may furnish valuable information. Such tests can never replace sound clinical judgment.

Results obtained with these tests—particularly when antibiotic disks are used—may be misleading. Tube-dilution and agar-plate methods of determining in vitro sensitivity are subject to less error and often will aid in the selection of the most effective antibiotic or combination of antibiotics.

The choice of the drug to be used systemically in a specific staphylococcal infection will depend on the type of staphylococcus, its sensitivity to the various antibacterial agents, and the type and location of the infection. In spite of the introduction of many other antibiotic agents, penicillin still is the drug of choice in certain staphylococcal infections. The effectiveness of penicillin against strains of staphylococci which are very sensitive to its action surpasses the effectiveness of many of the more recently available antibiotic agents. Fortunately, these strains of staphylococci do not develop resistance to penicillin during treatment and, therefore, penicillin is just as effective in the treatment of this type of staphylococcal infection as it was 15 years ago. Unfortunately, many of the infections due to the hospital acquired staphylococci, for example, those of the so-called 80/81 bacteriophage types, are insensitive to the action of penicillin, and the administration of penicillin for these infections is probably useless.

Erythromycin (ilotycin, erythrocin) has been effective in infections due to staphylococci which are sensitive to its action. Unfortunately, strains of staphylococci which are resistant to erythromycin have appeared rapidly and this has lessened the clinical effectiveness of this agent in staphylococcal disease. The incidence of infection due to erythromycin-resistant staphylococci has increased progressively in direct relation to the frequency with which the antibiotic has been used. The authors believe that the use of erythromycin should be restricted primarily to two situations: (1) to the management of infections attributable to strains of staphylococci that are sensitive to erythromycin, but resistant to penicillin; and (2) to the management of serious infections due to erythromycin-sensitive organisms in patients who are allergic to penicillin or who, because of a strong allergic history, are prone to display an untoward reaction to penicillin.

Novobiocin (albamycin, cathomycin) has been shown to be active against staphylococci. There appears to be no cross resistance between novobiocin and the other available antibiotic agents. Clinical experience with novobiocin in certain staphylococcal infections has been favorable. Satisfactory clinical response has coincided with the oral and parenteral administration of this antibiotic in infections of the skeletal system and soft tissues. Also, it has been effective in certain cases of staphylococcal bacteremia and in the treatment of other staphylococcal infections, such as pneumonia and meningitis.

Strains of staphylococci resistant to novobiocin have appeared; the incidence of these strains will undoubtedly increase in the future if considerable amounts of novobiocin are used. Because of the problem of antibiotic resistance, the authors believe the use of novobiocin should be

restricted to infections caused by staphylococci which are resistant to penicillin and erythromycin. The most frequently encountered untoward reaction after the oral administration of novobiocin has been an allergic dermatitis, and this has limited, and will continue to limit, the usefulness of this drug.

Triacetyloleandomycin (cyclamycin) is a relatively new addition to the list of antistaphylococcal drugs. The parent compound, oleandomycin, did not gain favor as an antistaphylococcal drug because, weight for weight, it was not as effective as erythromycin and in approximately 30% of staphylococci isolated from clinical infection, there was cross resistance between erythromycin and oleandomycin. In equivalent oral dosage, triacetyloleandomycin more closely approximates the antibacterial activity of erythromycin in serum. However, erythromycin appears to remain slightly superior to this newer agent in its ability to induce a bacteriostatic effect in vitro. The authors believe, therefore, that erythromycin remains the drug of choice if the strain of staphylococcus is sensitive to both it and triacetyloleandomycin. In infections due to erythromycin-resistant strains of staphylococci, triacetyloleandomycin may be useful because there is a reasonable chance that the organism may be sensitive to its action. Use of triacetyloleandomycin against strains sensitive to its action, but resistant to erythromycin, may obviate the need for frequent use of novobiocin and thus permit the greater restriction of the use of this valuable drug.

Chloramphenicol (chloromycetin) has been an effective agent in the treatment of staphylococcal infections. However, the use of this agent has been associated with the development of blood dyscrasias including aplastic anemia, thrombocytopenia, and granulocytopenia. These toxic reactions apparently occur infrequently, but it seems best to limit the use of chloramphenicol to staphylococcal infections in which the infecting strains are sensitive to its action, but resistant to the previously discussed antibiotic agents.

Bacitracin has been used successfully in the treatment of various types of staphylococcal infections. The systemic use of this antibiotic has been limited, however, by its potential renal toxicity, by the discomfort it may cause when injected intramuscularly, and by the fact that it is not absorbed into the blood when administered orally. Neomycin is another antibiotic which is nephrotoxic and, in addition, has the ability of damaging the eighth nerve. Also, like bacitracin, it is not absorbed after oral administration. However, both of these drugs can be used with good effect when sterilization of the gut is desirable and especially when one wishes to eliminate staphylococci from the gastrointestinal tract. In addition, occasionally either bacitracin or neomycin can be used systemically in small doses in combination with other antibiotic agents in attempts to gain a greater killing effect on staphylococci.

In the past, many staphylococcal infections have responded to the use of tetracycline, chlortetracycline, or oxytetracycline. However, because of

the profound effect which tetracycline and its derivatives have on the normal bacterial flora of the intestinal and respiratory tracts and because of the high incidence of tetracycline-resistant staphylococci in the environment today, it would appear advisable whenever possible to avoid the use of these antibiotic agents in staphylococcal infections especially when patients are hospitalized.

Streptomycin, because of the extreme rapidity with which staphylococci may develop resistance to its action and polymyxin B which has only slight if any antistaphylococcal action, usually are not considered in the therapy of these infections. With the possible exception of minor urologic infections, the use of sulfonamides and nitrofurantoin (furadantin) at the present time does not have a significant role in the treatment of infections due to staphylococci.

Ristocetin (spontin) in low concentrations has a bactericidal effect against strains of staphylococci thus far tested. However, this antibiotic has been reported as occasionally causing serious side effects and, therefore, use of it should be reserved for serious staphylococcal infections, such as bacteremia and endocarditis against which no less toxic antibiotic will suffice. Potentially fatal infections have been cured by ristocetin, and treatment with the antibiotic should be considered in patients seriously ill with staphylococcal infections. In its present form, ristocetin can be administered only by the intravenous route in the treatment of systemic infections.

Vancomycin (vancocin), as yet limited to investigational use, is another potent antistaphylococcal agent which has been life-saving in certain instances, but which has some toxic potentialities. In its present form, it also can be given only by the intravenous route in the treatment of systemic infections. Satisfactory results have followed the use of vancomycin in patients suffering from bacterial endocarditis due to penicillin-resistant strains of staphylococci. The other antistaphylococcal agents—with the possible exception of ristocetin—have seldom been effective in this type of infection. Vancomycin and ristocetin, therefore, have a definite place in the antistaphylococcal armamentarium, but their employment must be limited to the more serious of the staphylococcal problems.

If the problem of staphylococcal infections is faced realistically, if principles of asepsis and methods of isolation are reinstituted, and if the remaining infections are treated in a rational manner, progress in the unending battle against the staphylococcus should continue. (Nichols, D. R., Martin, W. J., Staphylococcic Infections and Their Management: Surg. Gynec. & Obst., 107: 523-526, October 1958)

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Use of funds for printing this publication has been approved by the Director of the Bureau of the Budget 19 June 1958)

Clinicopathological Correlations in Melanoma

Malignant melanoma has long been considered one of the most uncontrollable neoplasms encountered. The present series is composed of all histologically proved cases of malignant melanoma in adults admitted to the Presbyterian Hospital (New York, N. Y.,) between 1925 and 1952. During these years, approximately 230 malignant melanoma specimens were referred to the hospital's Laboratory of Surgical Pathology from outside sources for diagnostic and/or consultation purposes only; these cases are excluded from this series. During the period, 1925 to 1951, there were 117 patients with malignant melanoma of the skin admitted to the hospital on whom complete clinical records were available for review. Twelve of these patients were lost to follow-up or were known to have died within 5 years of unrelated disease. There were then 105 patients comprising the total determinate group on whom at least a 5-year follow-up was available.

Because of the obvious interest in attempting to assess the effect of early diagnosis and adequate therapy upon the natural history of this disease, the patients who received either no treatment or only palliative therapy because of advanced disease were segregated from this group. There were 18 such cases leaving in the total determinate group 87 treated cases. Thirty-six individuals were alive without evidence of disease at least 5 years after treatment. This represents approximately 34% of the total determinate series and 41% of the treated cases.

Malignant melanomas of the eye and body orifices (oral and nasal cavities and the anus) were omitted from this study. Melanomas in these areas have different biological characteristics and prognosis as compared to melanomas of skin. Similarly, melanomas occurring in childhood are known to represent a different diagnostic and prognostic problem and, therefore, are not reviewed in this article.

The age distribution in this series ranged from 22 to 80 years, with the largest number of cases for a 10-year period occurring in the fourth decade. This is somewhat lower than for some other common cancers, such as those of breast, stomach, lung, and colon. The sex incidence was roughly equal consisting of 49 men and 56 women.

Seventy-one percent of the patients gave a history of a preexisting mole at the site of the melanoma. Of considerable interest in the histories of these patients is a group of individuals who received prior treatment to the melanomas. This treatment may have been either inadequate or adequate in terms of the extent of the local excision, but was generally inadequate in the sense that regional lymph node dissection was not performed as part of the initial therapeutic program. These patients then were admitted to Columbia Presbyterian Medical Center for secondary therapy. This is of significance because this group of patients in the clinical series had a strikingly poorer prognosis than did the average for the series as a whole.

Under ordinary circumstances, surgical therapy consisted of wide local excision and, in the majority of instances, discontinuous radical dissection of the regional lymph nodes. The following figures are of interest. Keeping in mind that the 5-year follow-up period is admittedly a minimum follow-up period it is to be noted that more than two-thirds of the individuals who showed recurrence of the disease did so within the first 2 years after treatment; 80% of the recurrences occurred within the first 5 years after treatment, and only 1% appeared after 10 years. These figures suggest that a 5-year survival free of evidence of disease can be used as a reliable yardstick for evaluating therapy but by no means assures a permanent cure in every instance.

The authors are of the opinion that radical operations for cancer in general, and for malignant melanoma in particular, should never be undertaken without previous histological proof that cancer is present. This is a rule that suffers only few exceptions; if it is not followed, sooner or later it will be found that a mutilating operation has been performed for a benign condition that clinically simulated cancer.

In their experience, the authors have seen several examples of benign lesions, such as seborrheic keratoses or pigmented nevi, that had changed in appearance because of infection; exogenous pigmentations mistaken for a superficial spreading malignant melanoma, et cetera, that were treated with major surgical operations because experienced clinicians had no doubt about their malignant nature. These errors stem in part from the still widespread belief that malignant melanomas should never be biopsied because cutting into them or in their immediate vicinity might increase the incidence of lymphatic or hematogenous spread. On theoretical grounds, this fear of causing metastases by biopsy might seem justified. In fact, to the best of the knowledge of the authors, there is no well documented statistical proof that this danger really exists.

Briefly stated, the Columbia-Presbyterian Medical Center experience with malignant melanoma has shown the following important points:

1. In 10 out of 24 cases in which there was no clinical lymph node involvement, metastases were found after prophylactic regional lymph node dissection.
2. Six of these 10 patients are living and well for at least 5 years.
3. In at least 5 of the 8 patients who had local exicsion only and later showed recurrence, the first manifestation of persistent disease was in the regional lymph nodes.

For these reasons, it is the authors' opinion that a prophylactic regional node dissection should be done in all cases of malignant melanoma. Aside from the obvious questions of the patient's suitability for a major surgical procedure or the presence of distant metastases, there are two possible exceptions: (1) if the topography of the lesion is such that its lymphatic drainage will involve more than one regional lymph node station;

(2) if adequate histological study suggests a purely junctional and intraepidermal involvement.

This surgical pathological study of malignant melanoma of the skin of adults was undertaken to correlate the follow-up results of several types of surgical treatment with the pathological findings. The treatment consisted of either (1) excision of only the primary tumor, (2) excision of the primary tumor plus simultaneous elective or so-called "prophylactic" node dissection, or (3) excision of the primary tumor plus simultaneous or delayed radical dissection of clinically evident nodal metastases.

Because two-thirds of the recurrences after treatment took place within 2 years, and 80% within 5 years, the 5-year apparent cure rate appeared to be a reasonable measure of the effectiveness of treatment.

The authors' findings, although expressed in percentages, are based on small subgroups and are probably without statistical significance. They are offered as food for thought and as probably indicating certain trends:

1. Metastatic deposits were found in a significant proportion (42%) of so-called "prophylactic" lymph node dissections. Meticulous examination of lymph nodes, including serial section study in some cases, was required to discover some microscopically minute metastases.

2. The remarkably favorable 5-year apparent cure rate (60%) in these patients contrasts with the poor prognosis (10%) for those patients having node dissection for clinically evident nodal metastases.

3. Some patients who were treated by excision of only the primary tumor without "prophylactic" lymph node removal subsequently showed reappearance of disease. A clinically evident regional lymph node metastasis was almost always their first sign of recurrence. "Prophylactic" node dissection in these cases would have removed nodal metastases while still minute with the probable favorable prognosis described.

4. Although there are spectacular exceptions, pathological study disclosed that melanomas 2 cm. and less in size had a 5-year apparent cure rate of 61% as opposed to 16% for melanomas more than 2 cm.

5. Markedly favorable prognostic significance was associated with a pathological feature termed "lateral junctional spread." This term describes the presence of malignant melanoma cells in "junctional" and intraepidermic position, peripheral or "lateral" to the central, more deeply invasive portion of the growth. This feature appears to reflect a tendency toward a restrained superficial type of growth.

(Lane, N., Lattes, R., Malm, J., Clinicopathological Correlations in a Series of 117 Malignant Melanomas of the Skin of Adults: Cancer, II: 1025-1043, September - October 1958)

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The Stein-Leventhal Syndrome

One of the most dramatic and satisfying experiences in the practice of gynecology is the establishment of true menstruation and fecundity following a simple wedge resection in certain patients with amenorrhea and bilateral polycystic ovaries. How these cysts occur, why they produce a definite symptomatology, and why the wedge resection leads to a reestablishment of normal physiology has led to much speculation and some experimentation.

Grossly and on section, the mature ovary is normally a "cystic" structure. Of the numerous follicles found in the preadolescent ovary, only a small number eventually go through the complete cycle including ovulation and corpus luteum formation. The vast majority fall by the wayside by a process known as atresia folliculi. In the cystic stage of atresia, the follicle may be lined by granulosa cells or there may be no granulosa, the wall being formed by the theca interna layer. Normal ovaries are the seat of such microcystic degeneration with the cysts eventually becoming obliterated by cicatrix. Under certain pathologic conditions, numerous follicles may mature to the cystic stage and fail to go on to cicatrization. When the change progresses without ovulation and produces enlargement of the ovary with markedly thickened tunica albuginea and hyperplasia of the theca interna cells, an anatomic entity presents itself which has been labeled bilateral polycystic ovaries. Such ovaries may attain an enlargement which remains static for years. When these anatomic findings are associated with menstrual irregularities ending in amenorrhea or oligomenorrhea, sterility, and hirsutism, a clinical entity or syndrome presents itself which was described by Stein and Leventhal in 1935.

The syndrome is characterized by secondary amenorrhea, sterility, bilateral polycystic ovaries, and hirsutism, occurring in young women in the second or third decade of life. In the author's earlier cases, obesity was commonly present, but a review of larger numbers has shown no greater incidence than expected in normal individuals. The menstrual history is variable and depends upon the duration of the disturbed physiologic state and the changes in the ovary. The secondary amenorrhea may be preceded by normal menarchal and adolescent periods. Irregularity then occurs (or may be present from the beginning) which is characterized by lengthening intervals interrupted by scanty flows. On occasion, there may be frequent bleeding or even menorrhagia, as was noted by Ingersoll in 5 of 37 cases and by Stein in 8% of his cases. The final amenorrhea may be interrupted by occasional bleeding a few times yearly or may be an absolute phenomenon lasting for years. Persistent anovulation characterizes all patterns of bleeding in these cases. The basal body temperatures show a continually monophasic curve, the vaginal smears demonstrate an estrogenic effect, and the endometrial biopsies reveal a low proliferative endometrium. In the early states, there may be a reversal of the disorder; ovulation may break through

and be followed by pregnancy. In the few cases where this occurred in the present series, menstruation was normally reestablished following pregnancy. Pregnancies also occurred before the onset of the syndrome, although rarely.

The demonstration of bilateral polycystic ovaries is the keystone in the diagnosis. Sometimes, it is difficult to detect these ovaries on routine bimanual examination, and as a matter of fact, they can be definitely felt in only about one-half of the women who harbor them. Obesity, marked pelvic inclination, abdominal rigidity, and inaccessibility of the ovaries to the palpating fingers are factors accounting for the difficulty of being absolutely sure of the size and contour of the ovaries.

A diagnosis of the Stein-Leventhal syndrome with assurance that wedge resection will be successful is made only after other causes of amenorrhea, polycystic ovaries, and hirsutism are ruled out. Diagnosis is facilitated by a detailed history, physical examination, gynecography, and/or culdoscopy for visualization of the ovaries, x-rays for enlargement of the pituitary or adrenal, and a determination of the urinary excretions of 17-ketosteroids and the "pregnane complex." Hyperplasia and new growths involving the ovary, pituitary, and adrenal glands must be differentiated because they may produce one or more of the triad of symptoms.

The treatment of sterility due to the Stein-Leventhal syndrome is wedge resection of the polycystic ovaries. . Some have used low-dosage irradiation to the ovaries in patients who exhibit the syndrome, with establishment of normal menstruation and pregnancies.

The present review of the Stein-Leventhal syndrome was undertaken in order to crystallize present knowledge about it. Although the pathogenesis has not been established, it is considered a possibility that the ovarian changes are due to a "chronic" stimulation by LH (luteinizing hormone). It is possible that the adrenal cortex as well as the ovaries may be involved in the symptomatology in some cases, but this association has not been clarified. Of the many conditions producing amenorrhea, enlarged ovaries, and hirsutism—which must be differentiated from the Stein-Leventhal syndrome—mild adrenal hyperplasia is most important. Determinations of the urinary excretions of the 17-ketosteroids and the "pregnane complex" and the use of the "cortisone suppression" test are valuable aids in the selection of patients for wedge resection. (Leventhal, M. L., The Stein-Leventhal Syndrome: Am. J. Obst. & Gynec., 76: 825-837, October 1958)

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Hydrocarbon Pneumonitis

It has been said that accidents account for one-third of all deaths in children and that one of the leading causes of accidental death in the very young is poisoning. Bain has stated that 25% of all poisonings in children under the age of 5 are due to the consumption of petroleum products. Of the petroleum oils, kerosene is responsible for the great majority of poisoning incidents, but a number of other hydrocarbons, both aliphatic and aromatic, have been ingested in the form of various items available in the average home, such as furniture polish, lighter and cleaning fluid, insecticides, and similar materials.

Hydrocarbon poisoning is of considerable economic importance for, even though the mortality rate is low (of the order of 1%), hospitalization is always required.

The pediatrician is familiar with the various clinical patterns displayed in hydrocarbon poisoning; these include all variations between the alert asymptomatic patient and the vomiting lethargic one who may be febrile and exhibit obvious physical signs of pneumonic infiltration.

Management following hydrocarbon ingestion begins with gavage if there is unabsorbed material in the stomach. Further treatment includes the administration of oxygen and moist air together with broad-spectrum antibiotic therapy. Other symptomatic and supportive measures are employed as needed. In general, response to this regime takes the form of rapid improvement but, if intake of the poisonous hydrocarbon has been massive, there may be residual central nervous system, pulmonary, or liver damage.

The finding of chief interest to radiologists is the rapid development of a pneumonitis of rather typical appearance which may be appreciable on films made as early as 20 minutes after ingestion and may persist for weeks after symptoms have disappeared. The mechanism of production of this infiltrate has been a matter for lively discussion and two theories still have many adherents. One possibility is that the development of an infiltrate is dependent principally upon aspiration of the toxic substance into the lungs with or without vomiting. The second is that the substance is absorbed through the upper gastrointestinal tract and reaches the lungs blood-borne, there to cause an infiltration by a process of local irritation.

During the 4-year period of this study, 65 patients were observed in the emergency facility of Parkland Memorial Hospital (Dallas) because of ingestion of kerosene or other hydrocarbons. Five of these patients were not examined roentgenologically and were not included in this series. The remaining 60 patients had at least one radiographic examination during their period of observation. Fifty-five of the 60 were admitted to the hospital for further care, the average length of hospital stay being four and one-half days.

Of the 60 patients considered in this study, one was a man of 44 years who attempted suicide. The remaining 59 were children ranging in age from 13 to 50 months. The average child was approximately 20 months old and came from an indigent Negro household.

In 48 of the 60 cases, kerosene was the poisoning agent; in the remaining 12, other hydrocarbon products commonly to be found in the home were incriminated. Included in the latter category were house paint, gasoline, turpentine, lighter fluid, several brands of furniture polishes and cleaners, and insecticides. Usually, the amount of the toxic agent ingested was unknown and could not be estimated with any degree of certainty. As one might expect, there was a correlation between amount ingested and the severity of clinical symptoms as well as the amount of visible infiltrate on x-ray films and the duration of hospitalization required.

A history of spontaneous or induced vomiting could be obtained in about one-third of all cases, but an analysis of the material showed no real correlation between a history of vomiting and the extent of the disease. If hydrocarbon pneumonitis is due to aspiration, this process must occur at the time of ingestion. Obviously, it cannot be dependent upon the mechanism of vomiting, if the histories elicited in the present cases are correct.

Physical examination revealed signs consistent with the presence of pulmonary consolidation in only 40% of the cases, whereas radiographically demonstrable infiltrates were present in almost all cases.

During the earlier years of this study, it was customary to treat virtually all cases of hydrocarbon poisoning with gavage, but this did not appear to affect the extent of the disease radiographically or to lessen the average length of hospital stay. In the past, gavage has been blamed for the development of the infiltrate, but this does not seem to have been substantiated in this study.

A Table shows a classification of radiographic findings on initial chest films of the 60 patients in this series. The authors employed Foley's classification by size of infiltrate on the postero-anterior film which is as follows: Group 1, less than 10% of the lung area involved; Group 2, more than 10 but less than 30% of the lung area; Group 3, more than 30% of the lung area. It can be seen that the majority of cases fell into Groups 1 and 2. Three of the cases showed extensive infiltrates. Four showed minimal or questionable infiltrative processes, while the remaining 4 cases showed no evidence of an infiltrate on one or more chest examinations. The infiltrates ranged in character from softly flocculent to homogeneous.

There was no fatality in the present series and, among those cases followed, there was only one instance of sequelae of a severe nature which might be blamed on the episode of hydrocarbon intoxication. (Bonte, F. J., Reynolds, J., Hydrocarbon Pneumonitis: Radiology, 71: 391-396, September 1958)

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Cretinism

This article reports findings in a group of cretins who have been under observation at the National Institute of Arthritis and Metabolic Diseases. The patients—gathered within the course of a year—suggest that the condition is far from disappearing and their histories reaffirm that tardy recognition remains a major problem of the syndrome.

The studies reported include those related to bone growth, cerebral activity, and thyroid function. Seven of the 12 patients have been treated with L-tri-iodothyronine; the results are reported.

The patients studied, 5 males and 7 females, ranged in age at the time of admission from 4 months to 38 years. In all patients except one, thyroid substitution had been allowed to lapse or was discontinued for at least 3 weeks before study.

The pregnancy of generation in each case was reported as normal; there was a history of familial thyroid disease in only 2 subjects who were 9 and 13 years of age and who were siblings. These were both athyreotic cretins and the only children of parents with no other history of thyroid disease. A suggestion that there might be a familial factor in athyreotic cretinism has been previously noted. None of the children were born or brought up in an area of frequent goiter. Ten patients were thought to be normal at birth.

Indication of abnormality occurred within the first 3 months of life in 8 patients. There was a striking uniformity of symptoms, inactivity, marked reduction in food intake, weak sucking, failure to gain weight, and constipation being reported in virtually all cases.

Patients in this group reiterated the lesson that cretinism has many facets and that its textbook appearance is probably infrequently present. Of this group of 12, only 3 struck one immediately as hypothyroid. In 7 cases, the skin was notably dry; in only 2, was it cool. None had a large protuberant tongue. Ten of the 12 showed no palpable thyroid tissue.

Standardization of the rates and patterns of bone maturation as determined by x-ray observation has provided a satisfactory method of corroborating the diagnosis of hypothyroidism in infants and children, Retardation of bone age is probably an invariable finding in athyreosis, although beyond the age of 3 to 6 months, it is not specific, being seen in many children who are short, undernourished, or chronically ill. Bone age, evaluated according to the standards of Greulich and Pyle, was found to be retarded in 10 of the 11 prepubertal patients. One girl in whom it was normal had been taking 0.12 gm. (2 gr.) of thyroid daily by the age of three and one-half to four years and represented probably the best treated of these patients.

This study documents the results of treatment of a group of cretins with L-tri-iodothyronine. It suggests that this rapidly acting thyroid hormone provides adequate replacement therapy for such patients and may be usefully added to the physician's choices. Although not qualitatively distinct from

dessicated thyroid or L-thyroxine, it has the advantage over the former of being a pure compound and, thus, quantitatively more dependable of effect and over the latter in being more rapidly metabolized in the body.

The problem of evaluating dosage, particularly with a view to obtaining optimum mental development, remains the major therapeutic challenge in this disease. Sufficient agents are now available so that the other features of athyreosis can easily be reversed. Retarded physical growth and immature motor maturation, constipation, cold intolerance, hypercholesterolemia, and so forth, are all amenable to treatment begun sufficiently early. A sizable proportion of even the best treated patients, however, are still found to have significant mental deficiency. Pickering and Lusted advised doses of L-thyroxine sufficient to keep the serum protein-bound iodine between 8 and 12 microgm. per 100 ml. and suggested that the bone maturation as indexed by the left hand and wrist provides a useful guide. They argued that normal bone maturation provides the best index of central nervous-system growth.

The authors' experience with tri-iodothyronine in this group, as well as in another group of dwarfed children, has shown it to be a powerful stimulant to bone growth and maturation. For both tri-iodothyronine and L-thyroxine, therefore, there is the potential problem of excessive acceleration of bone maturation and possible premature epiphyseal closure leading to a net shortening of achieved height. The risk of premature bone maturation is mainly significant as the time of epiphyseal closure approaches; before that, temporary differential acceleration of bone maturation could presumably be recovered by lowering of the dose. The nature of bone differentiation is very different in the early and puberal phases.

Whether larger doses of thyroid than have been used in the past hold any true hope for better mental development is not known. If they should, however, the small risk of precocious bone maturation could be well justified. (Federman, D., Robbins, J., Rall, J.E., Some Observations on Cretinism and Its Treatment: New England J. Med., 259: 610-615, 25 September 1958)

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Giant Cell Tumor of Bone

The term, giant cell tumor, refers to a specific type of primary bone tumor whose clinical, roentgenographic, and histologic features are so characteristic as to be generally recognized and accepted as an entity. The present series represents 108 cases, all of which have been microscopically confirmed as giant cell tumor. Nearly 50% of the present patients were in the third and fourth decades of life (20 to 40). The youngest patient was 11 years old, the oldest was 71. In this series, there were 45 males and 63 females. Most statistical surveys show this slight predominance in the females.

Most authorities believe that this tumor originates in the epiphyseal region from which it may, in advanced cases, extend to the adjacent metaphysis and even to the diaphysis. According to Willis, the tumor develops in the metaphysis and later invades the epiphysis. This tumor shows a predilection for the epiphysis, particularly of the lower end of the femur, upper end of the tibia, lower end of the radius and the pelvis.

Pain is the most prominent initial complaint and was noted in 88% of the cases. At the onset, it may be mild and often is intermittent. It is usually aggravated by activity and partially relieved by rest. Swelling was observed in more than one-half of the cases. Both pain and swelling were complained of in 48% of the patients and, in 20%, there was disability referable to the adjacent joint. Pathologic fracture was noted as the presenting symptom in 9 cases. While there was a history of trauma localized to the area of the tumor in 36%, its importance as an etiologic factor is still unsettled.

The objective findings in giant cell tumor may be minimal. Swelling, tenderness, and limitation of motion of the adjacent articulation may be present. In about 10% of cases, increased local surface temperature was observed which may be attributed to underlying increased vascularity. Limitation of normal range of motion occurred in 25% of cases.

This tumor generally presents a rather characteristic roentgenographic appearance and radiologists are able to make a correct diagnosis in a higher percentage of giant cell tumors than in most other types of bone neoplasms. Nevertheless, other lesions may simulate this tumor so closely as to make a correct radiographic interpretation extrememly difficult. Among them are aneurysmal bone cyst, central chondroma, and chondromyxoid fibroma, benign chondroblastoma, central medullary fibrosarcoma, secondary chondrosarcoma, and solitary cell myeloma.

The x-ray findings usually show a circumscribed osteolytic area occurring in the epiphyseal region of a long bone. It may involve the adjacent metaphyseal region, but seldom extends far into the diaphysis. Trabeculations may sometimes be seen producing a compartmental appearance like the cut surface of an onion or like soap bubbles. In rapidly growing tumors, erosion of the overlying cortex may be so complete as to leave no visible bony shell.

Giant cell tumor is a primary bone neoplasm which may remain benign and yield to local surgical measures or to radiation. On the other hand, it may recur after treatment with either of these methods or a combination of them. When it recurs, it may present the same microscopic appearance as when first treated, or it may show "aggressive" or "borderline" features. It may even have the histologic characteristics of a true sarcoma and is then designated as malignant giant cell tumor. When this happens, the future course of the disease is that of a sarcoma.

That giant cell tumor is an unpredictable neoplasm and that controversy still exists as to how best to treat it, is apparent. Recurrence often follows

both surgical and x-ray therapy. Some more uniformly satisfactory method of treatment is needed. At present, however, the following criteria are suggested:

Conservative surgery for accessible tumors, such as those about the knee, wrist, ankle, or shoulder, is recommended. If resection of the tumor-bearing portion of bone is possible, it offers an excellent prospect of cure; otherwise, curettage, chemical cauterization, and bone chip implantation may be employed. Should a recurrence take place, a second curettage is justified. If tissue from this second operation presents the same "benign" histologic features as were seen in the first operative specimen, one can await results. Some of the second curettages may be successful.

If, on the other hand, the pathologist describes a definite change in the stroma, perhaps reporting it as "aggressive" or "borderline", one should be prepared for another recurrence and radical surgery will then be required. If the microscopic features are those of a malignant (Grade III) tumor, amputation should be performed promptly. There is no evidence that radiation therapy can control a malignant giant cell tumor.

For those cases in which the primary site is considered surgically inacessible, initial radiation is the preferred method. Such treatment should seldom exceed a tumor dose of 2800 to 3000 r. If this fails to control the process, further courses of x-ray treatment are unlikely to do so and amputation must be considered. Curettage following failure of radiation is not recommended, nor is radiation generally desirable following failure of curettage. Occasional exceptions to the latter course have been observed. Resection after a tumor has recurred following primary radiation is sometimes successful. Primary resection for giant cell tumor deserves wider employment as an alternative to curettage because following resection the recurrence rate is low, whereas with curettage it is comparatively high. The authors have no record of a case in which adequate resection of primary method of treatment was followed by a recurrence.

When amputation is performed for malignant giant cell tumor, the 5-year survival rate is higher than that obtainable in most other varieties of bone sarcoma. The histologic grading of giant cell tumors by an experienced pathologist is a valuable guide in selecting the appropriate therapy. The unpredictable character of this tumor must be appreciated and the prognosis, therefore, guarded. (Coley, B. L., Higinbotham, N. L., Kogure, T., Giant Cell Tumor of Bone: Am. J. Surg., 96: 479-490, October 1958)

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Pregnancy after Pneumonectomy

Little is known about the course of pregnancy in patients who have undergone pneumonectomy for pulmonary tuberculosis and there is little

detailed knowledge of their labor and puerperium. Young female pneumonectomy patients often ask their physicians: "Is it sensible to marry and is there any objection to having children?" To obtain some insight into this problem, a national investigation was set up in the Netherlands; certain of the findings form the basis of the present report.

Information was received concerning 64 patients who passed through 74 pregnancies after pneumonectomies for pulmonary tuberculosis. Thirty patients were single at the time of resection. At the time of the investigation, 8 patients had twice passed through pregnancy after the operation; a ninth was 6-months' pregnant. One patient gave birth to a fully developed but stillborn child three times in succession; in this case, there was a rhesus antagonism. In 37 patients, the delivery took place at a clinic or infirmary; 12 patients had deliveries at home; of the remaining 25 pregnancies, the only detail given was that the course of labor was uneventful.

In 70 patients, the parturition was spontaneous; in 2 of these, the expulsion period was shortened. Forceps were used in only one case. Cesarean section was necessary in 2 cases—in one of them because of a serious dyspnea which resulted from an exudative pleuritis in the last month of the gravidity. The 74 pregnancies resulted in 70 healthy children; 4 children were stillborn, 3 of whom were of the same mother. In none of these deaths was there a clear connection with the tuberculosis of the mother.

On the basis of this investigation, it may be concluded that the fact of having only one lung does not appreciably harm the state of health of the expectant mother. Nor was any evidence found that pneumonectomy in the mother had exerted an influence detrimental to the growing fetus.

Although the results on the whole were favorable, it is still difficult to answer the question of whether women who have undergone a pneumonectomy should be dissuaded from having children. The patient commonly asks advice on this question when she is discharged from the sanatorium. An individual opinion is necessary in each case, one which considers both what would be best for the patient from a strictly medical point of view, and in the light of this opinion, what actual advice should be given to the patient. It is important to talk over this question with the husband in order that he may fully realize the state of his wife's health and act in no way prejudicial to it. Moreover, the advice given should be fully communicated to the family physician so that he may be aware of the various considerations involved. It is evident that rigidity in giving advice must be avoided and that the patient's environment and psychologic stability must be taken into account. In this connection, the experience derived from this series of pneumonectomy patients is considered to be of great value. The smaller series has already demonstrated that pregnancy and delivery can have a normal course after a pneumonectomy. This is in complete agreement with results of the present investigation. With regard to patients leaving the sanatorium after a successful pneumonectomy, it is necessary to judge each case individually in the light of any attendant

circumstance, Undoubtedly, it is advisable in these cases to recommend avoidance of pregnancy for the first 2 years after the operation. After such a period, it will be easier to judge the stability of the tuberculous process, the condition of the remaining lung and mediastinum, and the adaptability of the patient to the new situation.

In view of present experience, it is believed that seldom will it be necessary to advise against pregnancy if the condition after the pneumonectomy is stable and if there are no serious symptoms of respiratory and cardiac insufficiency. It is likewise advisable to limit the number of pregnancies after a pneumonectomy because the demands made by the family on the mother may possibly be beyond her physical capacity. It is desirable that these women bring up their children themselves as far as they can, for in doing so, they will more easily be able to regain any self confidence lost during their illness. The manner in which the family physician handles his confidential capacity in such a family will be of decisive importance for the rest of the patient's life. (Laros, C. D., Pregnancy after Pneumonectomy for Pulmonary Tuberculosis - Analysis of a Collected Series of Seventy-Four Pregnancies in the Netherlands: Am. Rev. Tuberc., 78: 563-568, October 1958)

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EDTA in Excessive Lead Absorption

Seven cases of excessive lead absorption were treated with intravenous ethylenediamine tetra-acetic acid (EDTA) in different ways and the resulting levels of lead excretion compared. One patient whose symptoms suggested lead poisoning, but whose employment did not, was similarly treated before and after lowering the plasma pH. Eight control patients received a single dose of intravenous EDTA, the resulting rise in urinary lead excretion being estimated.

Results indicated that optimum excretion of lead in the urine in a case of excessive lead absorption could be achieved by giving 2 gm. of EDTA by intravenous infusion over a period of 6 hours daily. After such an infusion, all patients in this category excreted lead in the urine at a rate of over 1.5 mg. in 24 hours. Lead excretion in patients not so exposed and similarly treated varied between 0.22 mg. and 0.65 mg. in 24 hours. This information appears to be of use in diagnosing excessive lead absorption where urinary lead values are not significantly raised and other blood and biochemical findings are not conclusive. However, it is suggested that in cases of severe lead poisoning intravenous EDTA should be given continuously for 48 hours or at least two 6-hour infusions should be given over the same period.

After 48 hours, it should be safe to resume intermittent daily therapy as above in five-day courses separated by 3 or 4 days. When urinary lead

excretion in the second 24-hour period of a course is less than 1.5 mg., it is an indication that the available lead stores are becoming exhausted.

It appears that the urinary excretion of lead after administration of EDTA is not influenced by a single dose of parathormone and is actually depressed by hydrocortisone. Lowering plasma pH by means of ammonium chloride and acetazolamide, although it increased urinary lead excretion without EDTA, appeared to depress excretion when EDTA was used. The renal elimination of EDTA was accelerated.

Two patients with the longest history of exposure to the risk of excessive lead absorption were shown to have lowered creatinine-clearance values. In these cases, excretion of EDTA was significantly delayed.

Of nearly 100 intravenous infusions of EDTA, no toxic effects were noted. (Leckie, W.J.H., Tompsett, S. L., The Diagnostic and Therapeutic Use of Edathamil Calcium Disodium (EDTA, Versene) in Excessive Inorganic Lead Absorption: Quart. J. Med., 27: 65-82, January 1958) (OccMedDispDiv)

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Eye Safety Equipment

It has come to the attention of the Committee on Industrial Ophthalmology, Council on Industrial Health, American Medical Association, that questions have arisen in industry and the lay press as to whether eye safety equipment might produce eye disease. The Committee makes the following statement:

> Eye disease is not caused by lenses in eye safety equipment. Substandard or improperly fitted lenses may cause annoyance and discomfort but not disease. Properly fitted safety goggles meeting the specifications of the National Bureau of Standards will eliminate such problems.
>
> The Committee is cognizant of the excellent results achieved in industry by well-conceived and well-executed eye protection programs, and thoroughly endorses them.
>
> Because eye protection programs involve medical eye problems, they are properly a part of industrial medical services and it is essential that such programs be under the supervision of a competent physician; examination, fitting, and maintenance of eye protective wear should be under the supervision of an eye physician. (Council on Industrial Health, Eye Safety Equipment: J.A.M.A., 168: 47, September 6, 1958) (OccMedDispDiv)

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Effect of Fluorescent Light on Vision

Fluorescent lighting is occasionally suspected of possessing harmful qualities not found in other forms of artificial illuminations or in daylight.

Both the ultraviolet and infrared components have been suspected. The Committee on Industrial Ophthalmology, Council on Industrial Health, A. M. A., makes the following statement:

The ultraviolet energy from clear blue summer sky light is several times as great per foot-candle as fluorescent light. Light from some fluorescent lamps resembles daylight more closely than that from tungsten filament lamps. This color resemblance to daylight is a desirable quality.

Infrared energy found in present-day fluorescent lighting produces no known physiological effect except that due to heat. Fluorescent light generates less heat per candle power than tungsten lamps. Glare may occur in any system of lighting. Its solution rests with proper installation and use.

Individual tasks need different levels of illumination to provide a satisfactory degree of visual efficiency and eye comfort. Recommended levels (in foot-candles) have been established by the American Standards Association and the Illuminating Engineering Society. They can be readily achieved through the use of properly installed and maintained lighting. Some individuals are light sensitive and experience eye discomfort from light regardless of its type or source. Constitutional and pathological factors should be considered as well as the amount and kind of light.

Noticeable flicker may be present in single tube installations, but usually is eliminated in modern multiple tube fluorescent installations.

Summary. Fluorescent lighting is not harmful to the eyes. It does not cause visual discomfort if properly installed, maintained, and used. (Council on Industrial Health, Effect of Fluorescent Light on Vision: J. A. M. A., 168: 47, September 6, 1958) (OccMedDispDiv., BuMed)

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Barriers to Employment of a Cardiac

Jobs are difficult for a cardiac to acquire in spite of the fact that he is physically capable and is usually anxious and willing to cooperate. The patient may be sufficiently experienced to carry out a job, but certain barriers are placed in his path that prevent his obtaining the position. The only actual cardiac barrier to employment is reduction in cardiac reserve. In other words, when the ability of the heart to supply oxygenated blood to the body muscles is reduced below the actual work requirement of a job, a definite impenetrable barrier is raised. When the cardiac reserve is decreased to this extent the patient obviously must seek employment which requires less physical exertion.

Cardiac reserve is manifest by two factors, congestive heart failure and coronary insufficiency, or a combination of both. Congestive heart failure may be caused by valvular heart disease, disease of the heart muscle

or high blood pressure. Coronary insufficiency, on the other hand, is practically always due to narrowing of the coronary arteries by arteriosclerosis which reduces the blood supply to the heart muscle and consequently limits the ability of the heart muscle to work. Therefore, when a cardiologist evaluates a patient for a given job, the efficiency of the heart muscle and valvular system must be determined. From this a fairly accurate determination of a man's work potential can be made. (Thompson, J. H., Barriers to Employment of a Cardiac: Indust. Med., 27: 404-405, August 1958; abstracted in Indust. Hyg. Digest, 22: 11, September 1958) (OccMedDispDiv)

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Water in Emergency Treatment of Chemical Eye Injuries

The Committee on Industrial Ophthalmology, Council on Industrial Health, A. M. A., has noted the tremendous saving of eyesight among industrial employees brought about by immediate and thorough flushing of harmful chemicals from the eyes by copious amounts of water. This has been found to be the most important first-aid measure in such cases.

Published reports of research in the use of buffered neutralizing solutions have failed to show superiority of buffer instillation over proper water irrigation. Buffer action is essentially limited to neutralization of acid and alkaline substances. Water irrigation removes chemicals by mechanical flushing.

The belief of the Committee is that copious irrigation with water is still the most universally available, effective, and practical emergency first-aid treatment of eyes injured by chemicals and is the method of choice in such cases. (Council on Industrial Health, Use of Water in Emergency Treatment of Chemical Eye Injuries: J. A. M. A., 168: 47, September 6, 1958) (OccMedDispDiv, BuMed)

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65th Annual Convention - Association of Military Surgeons of the United States

Some 2000 American and International physician, dentist, veterinarian, nurse, and medical specialist delegates will begin registering for the 65th Annual Convention of the Association of Military Surgeons on 16 November 1958.

The theme of the 3-day convention is "Dynamic Medicine and Rehabilitation in the Space Age." The President, Colonel C. R. Mueller USA MC (Ret) will open the meeting on 17 November with an address on this theme.

Guest speakers will include: General A. M. Gruenther USA (Ret), President of the American National Red Cross; Major General M. J. Maas USMCR (Ret), Chairman of the President's Committee on Employment of the Physically Handicapped; Dr. R. A. Kehoe, Director of the Department of Preventive Medicine and Industrial Health at the College of Medicine, University of Cincinnati; and Mr. F. Carey, Science writer for the Associated Press.

A panel meeting on the "Problems of Space" will include Brigadier General D. Flickinger USAF (MC); Professor W. von Braun; Captain N. L. Barr MC USN: Lt Colonel D. G. Simons USAF (MC); Captain C. F. Gell, MC USN; and Major G. A. Champlin MC USA. Colonel F. L. Wergeland MC USA will speak on the "Medicare Program."

The "Occupational Health Problems in Space Flight" will be discussed by a panel consisting of Major General W. F. Hall USAF (MC); Colonel J. R. Hall Jr., MC USA; Lt. Commander J. H. Ebersole MC USN; Captain G. J. Duffner MC USN; Colonel G. Knauf USAF (MC); and Dr. G. Kitzes.

The panel meetings on Wednesday will cover rehabilitation and medical administration in the medical services. During the three-day meeting, there will be special section meetings with panel discussions for dentists, veterinarians, nurses, and medical specialists.

Thirteen scientific exhibits will be displayed by the military services, Public Health Service, and the Veterans Administration on subjects, such as rehabilitation, arthritis, satellites, pathology, and nuclear effects. Films on medical and scientific subjects will be shown continuously throughout the meeting.

All Nurse Corps officers are invited to attend the convention. The Nurse Corps Section Meeting will be held at 1400 hours on 18 November 1958. "Rehabilitation Nursing: Is It New or Is It Old" will be the theme of the program of the Nurse Corps Section. (Assn. Mil. Surgeons)

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Residency Training Applications

The Advisory Board of the Bureau of Medicine and Surgery will meet in early January 1959 to consider applications for residency training in naval hospitals to begin July 1959 or after. Interested and eligible candidates are encouraged to submit their applications not later than 31 December 1958, by official letter to the Chief, Bureau of Medicine and Surgery, Washington 25, D. C., forwarded via chain of command. The request should include specialty, year level, three choices of locations for the training in order of preference, and a serivce agreement of one year for each year of training

received. Reserve officers should indicate that they are in the process of applying for a Regular Navy commission.

Applications are especially encouraged from Medical officers who hold Regular Navy commissions and who have completed, or will approximately complete, two or more years of commissioned service, exclusive of internship, by the time the training would commence, and who are currently serving or have served in an operational assignment. Applications are especially desired in the following fields:

Specialty	Location of Residencies
Anesthesiology	Bethesda, Md.; Chelsea, Mass.; Oakland, Calif.; Philadelphia, Pa.; San Diego, Calif.; St. Albans, N. Y.
General Practice	Oakland, Calif.; San Diego, Calif.
Neuropsychiatry	Bethesda, Md.; Oakland, Calif.; Philadelphia, Pa.
Neurology	Bethesda, Md.; Philadelphia, Pa.
Ophthalmology	Bethesda, Md.; Oakland, Calif.; Philadelphia, Pa.; San Diego, Calif.; St. Albans, N. Y.
Otolaryngology	Bethesda, Md.; Oakland, Calif.; Philadelphia, Pa.; San Diego, Calif.
Pathology	Naval Medical School, Bethesda, Md.; Oakland, Calif.; Philadelphia, Pa.; San Diego, Calif.; St. Albans, N. Y.
Urology	Bethesda, Md.; Oakland, Calif.; Philadelphia, Pa.; San Diego, Calif.; St. Albans, N. Y.

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Copper Sulfate Solutions for Hemoglobin Determinations

When screening blood donors, the majority of Blood Donor Centers use copper sulfate solutions of known specific gravity for hemoglobin determinations.

In order to simplify the procedure for the preparation of these solutions, the military services introduced many years ago a special reagent accurately weighed and packaged in a tightly sealed brown glass bottle to contain 170 gm. of copper sulfate. The contents of this bottle will make more than 1800 ml.

of solution of a specific gravity of 1.053 or 1.055. Very little time is required to prepare the working solutions of copper sulfate. The cost for the unit is $0.46 or $0.26 per liter of copper sulfate solution.

The cost of purchasing prepared copper sulfate solution is $13.20 per case of twelve 250 ml. bottles or $4.40 per liter of solution.

It is suggested that Donor Centers and Blood Banks consider the possibility of using the copper sulfate listed in the Armed Services Medical Stock List in order to reduce the cost of procurement of whole blood.

(A. S. M. M., Coord. Comte.)

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From the Note Book

1. Rear Admiral B. E. Bradley, Deputy Surgeon General, represented the Surgeon General at the cornerstone laying ceremony of the new 15-story Navy Hospital, Portsmouth, Va., on 17 October 1958. The Hospital will have a designed capacity of 800 beds with supporting services capable of accommodating a 700-bed extension. This hospital provides the medical support for military personnel and their authorized dependents in the Norfolk-Portsmouth-Hampton Roads area of Tidewater, Virginia. In its modern plant it will have such innovations as radio-electronic paging for doctors and provisions for closed-circuit television in surgical suites. Estimated completion date is December 1959. (TIO, BuMed)

2. Captain J. C. Chapman DC USN, on duty at the U. S. Naval Air Station, Pensacola, Fla., was an essayist at the Ninety-Third Annual Meeting of the Ohio State Dental Association held recently in Cincinnati, Ohio. The subjects presented were "Prosthetic Dentistry for Technicians and Dentists" and "Guides for Better Artificial Dentures." (TIO, BuMed)

3. Selection of the Stratobowl near Rapid City, S. D. as the launch site for a manned, high-altitude balloon flight in early November to study Mars has been announced. Dr. John Strong, Director of the Laboratory of Astrophysics and Physical Meteorology, The Johns Hopkins University, under contract with the Office of Naval Research, will make the ascent to determine the water vapor content in the Martian atmosphere. CDR Malcolm D. Ross, USNR, veteran Navy balloonist and physicist in the Office of Naval Research, will pilot the balloon.

This will be the first flight in a new program of astrophysical research using the capability of the Strato-Lab balloon system. A second flight is planned some time after the first of next year (1959) to investigate the oxygen content of Mars; subsequent flights will be devoted to observations of other planets, the sun, and possibly stars not in the earth's solar system. The Mars

flights are scheduled at a time when Mars will be in the most favorable position for astronomical investigations. (TIO, ONR)

4. A total of 315 cases of poliomyelitis have been reported for the week ended October 4, 1958. Of these, 133 were reported as paralytic and 122 as nonparalytic cases. The revised figure for the previous week was 388 cases reported; 179 of these were paralytic and 162 nonparalytic. For the week ended October 5, 1957, there were 201 reported cases of which 100 were paralytic and 64 nonparalytic. The current week is the second consecutive week that the numbers of total cases and paralytic cases were less than the preceding weeks's figures. (PHS, HEW)

5. The number of surviving patients with tetraplegia following trauma is increasing. Many of these patients are injured between the 6th or 7th cervical vertebra. These patients have on one side, and often on both, these muscles functioning below the level of the elbow: extensor carpi radialis longus, extensor carpi radialis brevis, brachioradialis, flexor carpi radialis, and pronator teres. By two-stage surgical transfer of tendons in each upper extremity, active extension and flexion of all digits, the correction of clawing, and opposition of the thumb, can be accomplished. (J. Bone & Joint Surg., October 1958; P. R. Lipscomb, M. D. et al.)

6. A study of pregnancy and delivery was made in 299 white and Negro women 15 years of age and younger. Fifteen and seven-tenths percent of the white patients and 70.4% of the Negro patients were not married. Antepartal care was considered adequate in only 47.2% of the patients. The acute toxemias of pregnancy occurring in 17.7% were the most common major obstetrical complication. Labor and delivery were not influenced by the age of the patient. The perinatal rate was 5.9% and the prematurity rate was 17.4%. (Am. J. Obst. & Gynec., October 1958; S. R. Poliakoff, M. D.)

7. This article illustrates by documented case material that neuropathy may be the initial clinical manifestation of diabetes and indicates the important implications of this observation from both practical and theoretic aspects. (Ann. Int. Med., September 1958; M. Ellenberg, M. D.)

8. This study presents the roentgenographic and bacteriologic effects of therapy in a group of 25 patients with extensive silicotuberculosis. Previously untreated, this group consisted of 19 patients who received chemotherapy alone and of 6 with unilateral cavitary disease who, in addition, had various thoracic surgical procedures. (Am. Rev. Tuberc., October 1958; C. S. Morrow, M. Kantor)

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DENTAL SECTION

Extension Courses Added to Navy's Education Program

A home-study type of extension course in partial denture prosthesis (Prosthodontics, Part II, NavPers 10764) is now available to officers of the Dental Corps of the U. S. Navy and Naval Reserve. Developed by the staff of the U. S. Naval Dental School, National Naval Medical Center, Bethesda, Md., with the assistance of professional test writers of the home-study department of the University of Chicago, the course comprises six assignments covering diagnosis, treatment correlation, impression making, and the equilibration of the natural dentition and partial dentures. Included in the course material are a new edition of a widely accepted partial denture textbook and the Glossary of Prosthodontic Terms.

This is the first of a series of postgraduate extension courses being prepared under the auspices of the Naval Dental School to augment the continuing education program of the Navy Dental Service. During the coming year, other courses will become available in complete denture prosthesis, operative dentistry, oral diagnosis, periodontics, oral surgery, and crown and bridge prosthesis. These courses which are offered by the Department of the Navy in further recognition of its obligation to provide all Dental officers with a balanced educational program are not intended to replace short postgraduate or graduate courses, residency training, or the many other excellent educational experiences now enjoyed by officers of the Dental Corps. They are designed, rather, to assist Dental officers—especially those at sea and at isolated shore stations—in providing Navy and Marine Corps personnel with the highest possible type of dental service. Through these courses, Dental officers on active duty will be able to receive many of the benefits of advanced training without depriving military personnel of their services. Reserve Dental officers may receive credits for promotion and/or retirement upon successful completion of each course.

Applications for enrollment should be submitted on NavPers Form 992, Officer Correspondence Course, via official channels, to the Commanding Officer (Code 5), U. S. Naval Dental School, National Naval Medical School, Bethesda, Md.

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Board Certifications

Captain J. F. Bowman DC USN, Captain C. E. Thomlinson, Jr., DC USN, and Commander F. J. Kratochvil DC USN were certified recently as Diplomates of the American Board of Prosthodontics. Captain Bowman is on duty at the U. S. Naval Hospital, Philadelphia, Pa. Captain Thomlinson is at the U. S. Naval Station, Key West, Fla., and Commander Kratochvil is on duty at the U. S. Naval Dental School, National Naval Medical Center, Bethesda, Md.

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Applications Desired for Dental Technician Training

Applications are desired for courses of instruction in General Dental Technician, Advanced, Class "B", and Prosthetic Dental Technician, Advanced Class "B". Applicants must be qualified in accordance with BuMed Instruction 1510.2B. Eligible Technicians will be considered for selection to a class convening approximate to their rotational phase in accordance with current SHORVEY/SEAVEY procedures.

Requests are desired from eligible personnel who desire a course of instruction in Dental Technician, General (Basic) Class "A" which will lead to a change to dental rating. (Reference BuMed Instruction 1510.6A)

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RESERVE SECTION

Administration of Naval Reserve for Fiscal Year 1959

As set forth in BuPers Instruction 5400.1G dated 1 July 1958, the following selected excerpts from this important directive are published for the information and guidance of inactive Medical Department Reservists:

ACTIVE DUTY FOR TRAINING. An individual must be a member of the Ready Reserve to be eligible for active duty for training with pay as follows:

1. With Pay

a. Required. Annual active duty for training with pay, normally for a period of fourteen (14) days, is authorized for, and required of, personnel assigned in pay and associate pay status to units of the Naval Reserve.

b. Authorized. Annual active duty for training with pay, normally for a period of fourteen (14) days, is authorized within the limits of funds available for personnel assigned to most of the Specialist Programs* and for personnel serving in an appropriate duty with pay status.

2. Without Pay. Active duty for training without pay, normally a period of fourteen (14) days, is authorized within the limits of funds available for transportation and subsistence allowances for the following members of the Naval Reserve.

a. Those who are not eligible for active duty for training with pay.

b. Those who have been unable to take active duty for training with pay for lack of funds.

c. Those who are granted periods of active duty for training in excess of fourteen (14) days (exclusive of travel time).

3. Special Active Duty for Training. Special active duty for training, with or without pay, for periods in excess of fourteen (14) days but not more than ninety (90) days duration including travel time, may be performed for special purposes by Naval Reservists upon approval of the Chief of Naval Personnel. Requests for active duty for training in excess of fourteen (14) days must be fully justified and favorably recommended by cognizant commands.

4. Group Active Duty for Training. Group active duty for training shall be authorized and conducted in accordance with the instructions contained in Article H-4204 of the BuPers Manual.

EQUIVALENT DUTY. Equivalent duty shall be approved and conducted in accordance with the instructions contained in Article H-4206 of the BuPers Manual. The scheduling of equivalent duty is discretionary with unit commanding officers. Equivalent drills may be performed only in the quarter in which the regular drills being made up were missed, except that regular drills missed in the final month of any quarter may be made up in the first month of the next quarter if circumstances prevent make-up during the month in which missed. The maximum number of periods of equivalent instruction or duty that may be performed by individual members of the various programs are:

Maximum No. Regular Drills Authorized Per Annum	Maximum No. Periods of Authorized Equivalent Duty			
	Per Annum	Per Quarter	Per Month	Per Week
48	8	4	2	2
36	6	3	2	2
24	4	2	2	2

APPROPRIATE DUTY

1. The purpose of appropriate duty is to permit the Commandants to accomplish certain tasks and functions which are in support of the Naval Reserve and the Marine Corps Reserve. In addition, appropriate duty may permit Commandants to accomplish tasks in support of the Naval Service generally, and to authorize special categories of training for individual Naval Reservists.

2. Commandants are authorized to issue appropriate duty orders to individuals of the Naval Reserve not on active duty who are qualified to perform the duties required of them by such orders. It is the responsibility of the Commandant to determine that appropriate duty performed is of substantial benefit to the Navy generally and to exercise close supervision over the performance of appropriate duty.

3. Categories or Appropriate Duty Authorized

a. Appropriate duty orders may be issued for the performance of the following tasks in support of the Selected Reserve:

(1) To 2105, 2205, and 2905 officers for the performance of medical and dental examinations, and essential services of an administrative nature for Naval Reserve or Marine Corps Reserve units.

b. Appropriate duty orders may be issued for the performance of the following tasks in support of the Naval service generally:

(1) To 2105 and 2205 officers for duty as consultants at Naval Hospitals; (Appointment of officers for this duty must be approved by the Commanding Officer of the Hospital concerned and by the Chief, Bureau of Medicine and Surgery).

(2) To individual Naval Reservists for representing the Commandant in local areas where he cannot be represented by suitable active duty personnel, such representation to include attendance at public ceremonies, and other matters concerned with legal duties, public relations, the administration of the Naval Reserve in a local community, recruiting and procuring personnel for membership in drilling units.

c. Appropriate duty orders may be issued for the performance of the following special categories of training:

(1) Attendance at symposiums or other training or lecture programs conducted under the auspices of the Armed Forces; (Symposium must be sponsored by, and under control of, the military and may be conducted in conjunction with professional or trade conventions. In this event, they must have received prior approval of the Bureau or Office concerned and the Chief of Naval Personnel).

(2) To individual Naval Reservists for participation with drilling units of the Selective Service Program.

4. Pay Status. Pay status may be authorized in orders issued to Ready Reservists only for the performance of a task in support of the Selected Reserve

not to exceed 48 periods per year. The number of orders so issued will not exceed the quotas established in this directive. Pay status will not be authorized for other categories of duty except that Ready Reservists who participate with drilling units of the Selective Service Programs of other branches of the Armed Forces may be authorized pay status. Appropriate duty orders without pay may be issued to Ready or Standby (Active) Reservists.

5. Limitations

a. Appropriate duty orders may be issued to members of drilling units of all programs only for attendance at approved symposiums or other training or lecture programs.

b. In the event qualified officers are not available in a given locality for the performance of a support task, then fully qualified commissioned warrant officers, warrant officers, or enlisted personnel may be issued orders.

c. Orders issued for the performance of a task in support of the Naval service generally or special categories of training may indicate termination of the orders on completion of specific duties or may be on a permanent, continuing basis.

d. Credits for any purpose for the performance of appropriate duty will not exceed the following numbers of periods:

Annually	48
Quarterly	13
Monthly	6
Weekly	2
Daily	2

If two periods of appropriate duty are performed in one day, then each period will consist of duty of not less than four hours' duration.

6. Reports of Performance of Duty. Individuals under appropriate duty orders will report and certify their performance of such duty quarterly in letter form to the Commandant concerned via the Commanding Officer or Officer-in-Charge of the military activity, if any, to which the Reservist has been directed to report. However, the attendance of personnel attending approved symposiums or other training or lecture programs may be reported in composite letter form directly to the Officer-in-Charge, Reserve Officers Recording Activity, with copies to the Chief of Naval Personnel and the Commandant concerned.

7. Content of Orders. In addition to the requirements of the BuPers Manual, Article H-4207 (2) (a), appropriate duty orders will stipulate:

a. That the orders are subject to the consent of the Reservist concerned.

b. That acceptance of the orders by performance of duty under them subjects the Reservist to the provisions of the Uniform Code of Military Justice.

c. The military command, if any, to which the Reservist will report in compliance with the orders.

Copies of this BuPers Instruction are maintained on file at all Naval Reserve training facilities and are available for reference.

* Non-Pay Programs of the Naval Reserve have been categorically redesignated as Specialist Programs and Units.

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PREVENTIVE MEDICINE SECTION

Status of Rabies in the United States

The reported incidence of animal rabies in the United States during 1957 is about 5000 cases. Over the past 20 years, an average of 23 persons yearly have contracted rabies and died. The extent of the public health aspects of the rabies problem is not measured so much by the relatively small number of human deaths in the United States as by the 60,000 human rabies exposures annually which require the expensive painful series of 14 to 21 daily vaccinations. This involves a treatment schedule requiring greater professional medical care than most infectious diseases. Because it is common knowledge that there is no cure or recovery once the disease has developed, severe anxiety and fear of rabies occur in the more than one-half million persons bitten by animals each year. Another point of vital concern is the fact that 52% of the human rabies deaths occur in children under 15 years of age.

During the past 10 years, the total number of reported animal rabies cases in the United States has declined by one-half with a 68% decrease in the number of dog cases. On the other hand, the number of cases in wild animals has doubled. Foxes and skunks are the principal wild vectors of rabies in the United States. The geographic distribution of fox and skunk rabies is peculiarly discrete, the former restricted to eastern and southern United States and the latter to the Great Plains of the upper Missouri and Mississippi valleys and the central valley of California.

Improved canine immunization and stray collection programs have been important factors in the decline of animal rabies, particularly in dogs. About

a decade ago, the Communicable Disease Center, U. S. Public Health Service, inaugurated a national rabies control program to coordinate activities of the States in this field. The keystone in suggested organization of statewide control was the establishment of a sound program within the State health department under the direction of a public health trained veterinarian. The State public health veterinarian coordinates the local control programs throughout the State and guides them in the many technical facets of rabies control. The actual operations of rabies control are carried out at the local level and revolve around a three-point plan as follows:

1. Mass intensive immunization of all owned dogs
2. Elimination of strays
3. Reduction of excessive numbers of wildlife vectors

Since 1948, over 35 States have established these statewide programs in their health departments. New and more efficient canine antirabies vaccines have been developed and their superior antigenicity proved by laboratory experiments and field trials.

A decline in the incidence of canine rabies of 68% occurred during the last decade and a decrease of over 78% in the incidence of human rabies. Progress has been made in more efficient diagnostic techniques, reporting, preparation of educational materials, and treatment of exposed persons. With increased activity in applied research and improved field control practices, the disease will continue to decline and will reach a controllable minimum which will require a level of surveillance activity as part of each State's communicable disease control program.

The trend of rabies in wildlife, on the other hand, is increasing and in future years it is expected that wildlife rabies will become an ever more important aspect of the rabies problem. Foxes and skunks remain the principal wildlife vectors of the disease in the United States. Antibody studies by the Communicable Disease Center suggest evidence of subclinical infection in wildlife vectors in nature. There seems to be a direct relationship of positive titers with history of infection in the areas studied. Large surveys of small wild rodents in high enzootic areas have produced negative results confirming suggestions that these species do not serve as reservoirs or vectors of the disease in nature. Definitive studies in foxes have indicated that this species is not capable of transmitting the disease as a symptomless carrier. However, the transmitting potential of foxes is great as evidenced by the isolation of rabies virus from saliva of infected animals for as long as 17 days.

In 1953, rabies was isolated for the first time from an insectivorous bat in the United States. Since that time, isolations have occurred in 18 States among 14 different species of insectivorous bats. These species include colonial or cave-dwelling as well as solitary or tree-living bats. Public health aspects of bat rabies are yet to be clearly delineated. Rabies virus has been isolated from the brains and salivary glands of apparently normal as well as

moribund bats. Infection rates as high as 13% have been found in normal bats and as high as 56% in moribund individuals collected in southwestern United States. It is of interest that in 4 of the sample of 300 and in 12 of a sample of 203 apparently normal bats, virus was isolated from salivary glands and not from the brain. Although it has been possible to infect bats and other species of animals by experimental inoculation of suspensions of bat rabies virus isolates, attempts thus far to produce rabies in susceptible animals by induced bites of rabid bats have been unsuccessful. (Tierkel, E. S., Current Status of Rabies in the United States: Summary Report, Great Lakes Regional Rabies Conference, February 19 - 20, 1958)

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Sanitation and Operating Standards for Tattoo Shops

(Sections 7 and 8 of Chapter 26, "Tattoo Artists," of the Public Health Regulations, Board of Health, Territory of Hawaii, were extracted for the information of medical officers.)

"Section 7. Requirements for Certificate of Sanitation

The following requirements for a tattooing shop must be complied with in order to qualify for and hold a certificate of sanitation:

a. The shop shall be so located or constructed as to prevent the contamination of the work areas of the shop by dust from the street or sidewalk.

b. The shop shall be maintained in a sanitary condition.

c. All walls, ceilings, and floors shall be smooth and easily cleaned. Walls and ceilings are to be painted a light color. Walls, ceilings, and floors shall be kept clean and free from dust and debris. The floor shall be swept and wet-mopped daily. Floors, walls, or ceilings shall not be swept or cleaned while tattooing is in operation.

d. Adequate light and ventilation must be provided.

e. Each tattooing shop shall contain a sink for the exclusive use of the tattoo artists to wash their hands and prepare the customers for tattooing. The sink shall be provided with adequate hot and cold running water. There shall also be available at the sink approved soap, clean individual towels, and refuse containers.

f. Adequate toilet, urinal, and hand-washing facilities shall be available on the shop premises for the use of customers and tattoo artists. Toilets, urinals, and hand-washing facilities shall be maintained in a sanitary condition at all times.

g. An adequate number of work tables shall be provided for each tattoo artist. The surface of all work tables shall be constructed of metal

or other material which is smooth, light-colored, non-absorbent, corrosive-resistant and easily sanitized.

h. The shop shall be so arranged that work tables will be located at least 10 feet from observers or waiting customers or such work tables shall be separated from observers or waiting customers by a panel or other barrier at least 6 feet high. The panel may be constructed of glass, solid plastic, or similar material.

i. Proper closed cabinets for the exclusive storage of instruments, dyes, pigments, carbon, stencils, and other paraphernalia used in the shop shall be provided for each tattoo artist.

j. The tattooing shop shall have proper facilities for the disposition of waste materials.

k. Each tattoo artist shall be provided with individual hand brushes and fingernail files.

l. Signs shall be posted reading: 'No spitting on the floor of this shop.'

m. The holder of any certificate of sanitation shall not allow a tattoo artist to perform in his tattoo shop unless the tattoo artist is the holder of a valid license as defined in this chapter (Section 2).

n. The holder of a certificate of sanitation shall maintain proper records for each patron. A record of each patron shall include the date on which he was tattooed, his name and signature, address, and age, the design of the tattoo and its location on his body, his branch of service, rate, or rank and serial number if in the Armed Forces, and the name of the tattoo artist who tattooed him. These records shall be entered in ink or indelible pencil in a bound book kept solely for this purpose. This book shall be available at reasonable hours for examination by the Board or any law enforcement officer and shall be preserved for at least 2 years from the date of the last entry therein. Written consents permitting the tattooing of individuals under 20 years of age will be kept on file for 2 years by the holder of the certificate of sanitation for the tattoo shop in which the tattoo was performed.

o. Only tattooing shall be permitted in a tattoo shop.

Section 8. Minimum Operating Standards

The tattoo artist will use standards of aseptic technique in tattooing, dressing, and other operations that are approved by the Board. He will use only such germicides and dressings as are approved by the Board. All instruments, needles, stencils, dyes, pigments, dressing materials, razors, hand-brushes, fingernail files, and other equipment used by the tattoo artist while tattooing shall be sterile. The following minimum standards shall be observed at all times:

a. No person except a duly licensed physician shall practice tattooing in any place other than a tattooing shop for which a certificate of sanitation has been issued.

b. It shall be unlawful to perform any tattooing on an individual who is under the influence of intoxicating liquor.

c. It shall be unlawful to perform any tattooing on an individual under the age of twenty (20) years without the written consent of the parents or legal guardian of such individual. Such written consent shall be kept on file as provided for by these regulations.

d. No person with any disease in a communicable form or suspected of having such disease shall engage in tattooing. Such diseases may include, but shall not be limited to, the common cold, influenza, tuberculosis, scabies, impetigo, syphilis, chickenpox, measles (rubeola), German measles (rubella), mumps, whooping cough, hepatitis, infection on hands or arms, sore throat or jaundice of the skin or sclerae. The Board may require a certificate signed by a duly licensed physician stating that the said person is free from communicable diseases before permission to resume operation is granted.

e. Immediately after tattooing a patron the tattoo artist shall advise the patron on the care of the tattoo and shall instruct the patron to consult a physician at the first sign of infection of the tattoo.

f. Each tattoo artist must wear a clean outer garment.

g. Each tattoo artist shall have an individual fingernail file and individual handbrush which shall be clean and which shall be sterilized before each use by boiling for 15 minutes or by immersion in an approved germicidal solution for not less than 20 minutes. Germicidal solutions used to sterilize shall be changed daily, and the container thoroughly cleansed.

h. Before working on each patron each tattoo artist shall clean his fingernails with his individual nail file and shall thoroughly wash and scrub his hands with hot running water, an approved soap, and his individual handbrush.

i. That portion of the patron's skin to be tattooed shall be prepared by washing with hot water and approved soap; by shaving with a sterile safety razor and a single-service blade; and shaving shall be followed by thorough cleansing with hot water and approved soap applied with clean disposable cotton or gauze. A sterile handbrush shall be used, if necessary, to produce a clean skin area.

j. Following the cleansing of the patron's skin, the tattoo artist shall again wash and scrub his hands in the manner prescribed above. He shall allow his hands to dry without the use of towel or other mechanical means. Before placing the design on the patron's skin, the tattoo artist shall treat the skin area with 70% alcohol or other approved germicidal solution which shall be applied with sterile cotton or sterile gauze.

k. Only petroleum jelly, United States Pharmacopoeia or National Formulary, shall be applied to the area to be tattooed and it shall be in collapsible metal or plastic tubes. The application may be spread by the

use of sterile gauze, but not directly with the fingers.

l. The stencil for transferring the design to the skin shall be thoroughly cleaned and rinsed in an approved germicidal solution for at least 20 minutes and then it shall be dried with sterile gauze or in the air before each use.

m. In preparing non-toxic dyes or pigments, only non-toxic or sterile material shall be used. Single-service or individual portions of dyes or pigments in clean sterilized individual containers or single-service containers must be used for each patron. After tattooing, the remaining unused dye or pigment in the single-service or individual containers must be discarded. The individual container must be resterilized or discarded. All dyes or pigments used in tattooing shall be from batches certified under the provisions of Chapter 51, Food, Drug and Cosmetics, Revised Laws of Hawaii, 1955, as amended, or as otherwise approved by the Board.

n. A set of individual, single-service sterilized needles shall be used for each new patron. Following sterilization, needles shall be shaken dry, and if not immediately used, stored in petroleum jelly, U. S. Pharmacopoeia or National Formulary, and placed in a sterile, dust-tight container. The open end of the needle tube of the tattooing machine shall be cleaned and sterilized in an approved manner before each use. Not less than 24 sets of sterilized needles and tubes or tips must be on hand for the entire day or night operation. Sterilization shall be done by one of the following methods:

(1) By holding in an approved autoclave for 15 minutes at 15 pounds pressure,

(2) By boiling for 15 minutes,or

(3) By immersing in an approved germicidal solution for an approved period of time. No rusty, dull, or faulty needles shall be used for tattooing.

o. As the tattoo operation progresses, any excess dye or pigment applied to the skin shall be removed with sterile gauze or sterile cotton

p. The completed tattoo shall have the excess dye or pigment removed with sterile gauze. It shall then be washed with a piece of sterile gauze or sterile cotton saturated with an approved germicidal solution. It shall be allowed to dry. After drying, petroleum jelly, U. S. Pharmacopoeia or National Formulary shall be applied from a collapsible metal or plastic tube and the entire area covered with a piece of sterile gauze, which may in turn be covered with a piece of tissue and fastened to the site with an approved type of adhesive.

q. Storage cabinets shall be maintained in a sanitary condition and all instruments, dyes, pigments, stencils and other paraphernalia shall, when not being used, be kept in them in an orderly arrangement.

r. Work tables shall be kept clean and orderly.

s. No tattooing operation shall be carried out closer than 10 feet from observers or waiting customers unless such operation is separated

from observers or waiting customers by a panel or other barrier as provided for by Section 7h.

t. No person except a duly licensed physician shall engage in the practice of removing any tattoo."

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Policy

The U. S. Navy Medical News Letter, is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be, nor are they, susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

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